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More Deadly than Brass Knuckles Are Sudanese Bracelets—In coming-of-age matches, primitive Kau and Fungor men maul each other with these brass wrist pieces. Anglo-Egyptian Sudan's current elections are teaching such tribespeople how to vote by using tokens. Representing various candidates, the tokens are colored or stamped with silhouettes of elephants, butterflies, spears, automobiles, or other symbols.

(SEE BULLETIN NO. 5)

GEORGE RODGER—MAGNUM

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acre—the area has mines which alone have yielded four billion dollars in copper and other minerals. Irrigation has converted its desert wastes into agricultural oases of cotton, citrus fruits, dates, pecans, barley, and alfalfa.

Populous Sector—Comprising all or part of seven southern Arizona counties and four counties in New Mexico, the territory is almost as large as Pennsylvania. Within its 45,535 square miles live more than 350,000 people. Booming Tucson is the purchase's largest city. It was an adobe-walled village a century ago. Now a resort center, its metropolitan population has jumped from 43,000 to 170,000 since 1930.

Mines made important towns of Bisbee, Douglas, and Benson, all in Arizona. Lordsburg and Deming, both in New Mexico, center a thriving livestock industry. Rapidly expanding Yuma and Nogales rival Tucson as tourist towns.

Residents planning next month's centennial celebration find it hard to believe that this strip of land south of the Gila River was a sort of no man's land at the close of the Mexican War in 1848. Mexico claimed 15 million dollars for damages caused by Indians raiding the country from the United States side of the border. In 1853, James Gadsden, United States Minister to Mexico, began negotiating the treaty which was to fill the vacuum.

Despite protests from some quarters at buying the arid region, railroad interests were extremely anxious to secure it. Earlier surveys revealed the strip to be the most direct and practicable southern route for a transcontinental line. United States railroads were then engaged in a race to link the newly discovered gold fields of California with eastern supply centers.

Treaty Concluded—The treaty finally concluded between Gadsden and Santa Ana, the Mexican President, settled Mexico's damage claims and provided the United States an easily traveled transcontinental rail right of way wholly within its borders.

In the Senate the treaty met strong opposition but was ratified on April 25, 1854. Twenty years passed before the projected railroad—the Southern Pacific—was constructed. With access to the mountain passes northwest of El Paso, Texas, it is the lowest rail crossing of the Continental Divide. Its highest pass is at Lordsburg, New Mexico, at an elevation of 4,237 feet.

References—The region included in the Gadsden Purchase may be located on the National Geographic Society's map of the Southwestern United States. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also, "From Tucson to Tombstone," in *The National Geographic Magazine* for September, 1953; "Arizona Sheep Trek," April, 1950; "Adobe New Mexico," December, 1949; "Seeing Our Spanish Southwest," June, 1940; "New Mexico Melodrama," May, 1938; "Arizona Comes of Age," January, 1929; and, in the GEOGRAPHIC SCHOOL BULLETINS, December 17, 1951, "Border Patrol Guards 2,000-Mile Mexico Line." *(Issues of The Magazine not more than 12 months old are available to schools and libraries at a specially discounted price of 50¢ a copy. Earlier issues sell for 65¢ a copy through 1946; $1.00, 1930-1945; $2.00, 1912-1929. Write for prices of issues prior to 1912.)*

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HOMER L. CHAFFEE

Cotton Pickers March Across the Santa Cruz Valley—South of Tucson, Arizona, rich irrigated soil produces a bale to the acre. A bale brings the farmer about $160. Yet 100 years ago Uncle Sam bought this land, part of the Gadsden Purchase, for 34 cents an acre.

Bulletin No. 1, November 23, 1953

Gadsden Purchase Completed U.S. Century Ago

The shape of the United States on the map of North America filled out to today's familiar outline 100 years ago. On December 30, 1853, thirty million acres in what is now southern Arizona and New Mexico became the final continental addition to the territory of the United States.

Gadsden Purchase, as the addition was called, came about as an afterthought of the Mexican War. Critics of the treaty called the area "worthless land," yet it has since developed into one of the nation's richest and fastest-growing regions. It stretches between the west border of Texas and Yuma, Arizona.

Purchased for ten million dollars—a fraction over 34 cents an

Lumber, plywood, pulp, paper, and prefabricated houses are leading exports. Over 75,000 Finns are employed in woodworking plants.

Nearly three-fourths of the nation's 130,162 square miles are forested, mainly in spruce, pine, and birch. The land, one-and-one-half times the size of Great Britain and slightly larger than New Mexico, contains more than 60,000 lakes.

Northern Limit for Growing Grain—There are 7,500,000 acres of arable land in the country against 54,000,000 acres of forest. Agricultural production has always been low. Much of the country's soil is rocky and barren. Through Finland runs the northern limit for growing grains. To earn extra money to meet higher living costs, whole farm families work at factory and forestry jobs during the winter and other slack farm seasons.

Nearly one-third of Finland's area lies north of the Arctic Circle. The climate is tempered slightly by warm ocean currents, but snow generally covers the country from Christmas through April.

Summers are short but brilliant. In midsummer the sun shines at least 18 hours a day. Shops, offices, and factories close at three in the afternoon, permitting outdoor-minded Finns to throng beaches and parks. Visitors find the most interesting times to be in Finland are summer, when there is practically no night, and winter, when there is little day.

Finns are sports enthusiasts. The country boasts more than 500 athletic fields, and over 700,000 citizens are enrolled in various sports organizations. In a walking contest with Sweden in 1941, no less than 1,507,111 Finns participated. The nation's top athletes have won 69 Olympic gold medals, proportionately more than any other country.

A country born of war, Finland gained her independence in 1918 when she broke away from the crumbling Russian Empire. A loan from the United States helped establish the new nation. With steady payments, Finland has reduced the debt to about $7,000,000. The United States uses the money for educational benefits to Finnish citizens in this country and for Americans studying there.

Many Finns Speak Swedish—One of the world's most literate countries, Finland has compulsory education for children from seven to fifteen. The State University at Helsinki has over 10,000 students. The many-voweled Finnish language is one of Europe's oldest spoken tongues. Helsinki and many other cities are bilingual, with street signs and shop and restaurant names appearing in both Finnish and Swedish.

One of Finland's most pressing problems is the rebuilding of its war-torn eastern districts. After World War II the Soviet Union sliced off almost thirteen per cent of Finland's area, severing canal, road, and sewer systems in border areas. The city of Viipuri (Vyborg) normal port for Finland's rich Karelian region, now lies on the Soviet side of the border. Russia will not let Finland use it. Now the Finns face alone the task of constructing new arteries to replace the useless ones that lead to Viipuri.

References—Finland is shown on The Society's map of Europe and the Near East. For further information, see "Baltic Cruise of the *Caribbee*," in *The National Geographic Magazine* for November, 1950; "Scenes of Postwar Finland," August, 1947; "Flashes from Finland" (19 photographs), February, 1940; "Farthest-North Republic," October, 1938; and "Flying Around the Baltic," June, 1938.

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JERRY WALLER

Heart of Any Finnish Home Is the Stove—A fisherman's family of four—plus rag doll—keeps warm in the neat kitchen. They live on Gullkrona, one of the 30,000 counted islands of Finland's Turku archipelago. One of the most thickly islanded clusters in the world, Turku is a sailors' paradise and popular vacationland in summer. Winter and summer, it is a herring fishing ground for most of the 30,000 islanders.

Bulletin No. 2, November 23, 1953

Finns Forsake Farms for Factories

With Finland's basic economy shifting from agriculture to industry in postwar years, tens of thousands of Finnish citizens have forsaken farms and flocked to the factories.

A vigorous metal industry employs 80,000 workers, double the number in 1939. The shipbuilding industry has six times the capacity of 1944. Half the country's 4,000,000 inhabitants today work in industrial jobs compared with less than one-fourth 50 years ago. Helsinki (illustration, back cover), Tampere, and other Finnish cities are crowded with former rural residents.

Forests are Finland's "green gold," still the nation's major asset.

name from the fact that shipments from Spain's American colonies to the mother country were sent by way of Peru.

Mountainous little El Salvador might have remained a backward nation had its people not been so energetic. Most of them are of mixed Spanish and Indian blood. Rich or poor, they are nearly all industrious landowners who love the soil and are interested in new developments in agricultural science. They mine gold and silver, and have built an excellent road network. Textile mills process local cotton. One, in a single postwar year, produced nearly 2,000,000 henequen bags for the nation's No. 1 crop.

El Salvador's greatest postwar venture is the 200-foot-high dam across the Lempa River, 35 miles northeast of San Salvador. It is being built to double the country's present 31,000-kilowatt electric-power capacity. Plans to develop the nation industrially will receive a substantial boost from the projected harbor improvements.

The laws of El Salvador require every man to vote. The republic has been a leader in Central America's political affairs since the days of the struggle for freedom from Spain. Since the Central American Federation was dissolved in 1839, El Salvador has been a free and independent republic.

References—El Salvador is shown on the Society's map of Mexico and Central America.

For further information, see "Coffee Is King in El Salvador," in *The National Geographic Magazine* for November, 1944; "Volcano-Girded Salvador," February, 1922; and, in the GEOGRAPHIC SCHOOL BULLETINS, March 2, 1953, "El Salvador Pushes Lempa Dam Construction."

Towers of Tortillas Rise High for the Harvesters—Plantation women near Santa Ana, El Salvador's coffee-growing center, make corn cakes for the pickers. Harvested around Christmastime, the gleaming red coffee berries and glossy green leaves look more like holiday decorations than the No. 1 crop they actually are.

LUIS MARDEN

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Bulletin No. 3, November 23, 1953

Progressive El Salvador Plans Pacific Port

El Salvador, America's smallest nation, has plans afoot to step up activities on its Pacific—and only—coast.

With United States engineering assistance, the Central American republic hopes to boost its ocean-borne commerce by building a deep-water port near Acajutla. Along the same stretch of coast, since 1951, United States experts have been carrying on a survey of the possibilities for large-scale commercial fisheries.

Tucked away in the lee of its larger neighbors, Guatemala and Honduras, El Salvador faces the Pacific whose coast here runs more east and west than north and south. There are a number of small ports, but most of the sizable cities lie in the interior. From San Salvador, the capital, a paved highway leads to La Libertad, the busiest port. Acajutla now handles shipping for the western area, and La Union on the Gulf of Fonseca takes care of the eastern part of the country.

Coffee Is King—The most densely populated nation on the American mainland, and one of the most enterprising, El Salvador is almost entirely agricultural. It has been the world's third-largest coffee producer, ranking after Brazil and Colombia, but this year Mexico is crowding it for that spot.

The nation's peaceful farms and fertile green valleys would belie one of its nicknames, "Daughter of Fire," if it were not for a telltale line of 14 volcanoes. Izalco, near the coast, erupts with such regularity that mariners call it "the Lighthouse of the Pacific."

San Salvador is so often rocked by earthquakes that its valley is called "The Hammock." The city has been wrecked a dozen times since it was founded in 1539. The volcanoes, however, make up for their destructiveness. Lava from past eruptions has mellowed into fertile soil. Shimmering lakes, and geysers and hot springs that spray and shoot, boil and bubble, add variety to the landscape.

Is Massachusetts Size—El Salvador is a rectangular land extending 160 miles from east to west and about 60 miles at its greatest north-south point. Its 8,060 square miles lie entirely within the Tropics. However, an average 2,000-foot elevation gives it a pleasant, almost temperate climate except along the coastal lowlands. Wet and dry seasons divide the year. Reversing the usual Northern Hemisphere season names, the Salvadorans' winter is their wet season from May to October, and their summer—the dry season—extends from November to April.

Approximately two-thirds of the land is under cultivation. On their farms, many of which resemble stone-walled New England plots, Salvadorans—in addition to coffee, the king crop—raise corn, sugar, rice, cotton, indigo, and henequen. The latter plant, belonging to the agave family, and also called sisal, provides a strong fiber used for rope, binder twine, and coffee sacks.

From a stretch of shore between Acajutla and La Libertad called the Balsam Coast comes "Balsam of Peru." This tree gum got its inaccurate

Most American barnyard geese are descendants of the European and Asiatic graylag. The best for watchdog duty is the big and powerful Chinese goose, suspicious of strangers and possessed of a voice rivaling a Parisian taxicab horn in penetrating resonance.

Other than breeds developed from the graylag, there are only two recognized as standard—the Canadian and the Egyptian. They are descended directly from the wild species. Darwin said of geese that "hardly any other anciently domesticated bird . . . has varied so little."

Weed Crops—Because they are finicky and selective about their food, geese are excellent at weeding crops. Hundreds of thousands of them tend cotton fields, nurseries, and blueberry and strawberry patches from Texas to New Jersey.

Their employers claim they eat crab grass, Bermuda grass, and even saw-edged Johnson grass without ever touching the cotton plants, berries, or young trees. For fine lawns, however, they are generally not recommended.

A farm goose is still a valuable bird when prowlers do not threaten and the harvest season is over. Feathers and down are marketable, and roast goose for Thanksgiving or Christmas rivals the turkey as an American table tradition.

References—For additional information about geese and other fowl, see "Wildlife in and near the Valley of the Moon," in *The National Geographic Magazine* for March, 1950; "Easter Egg Chickens," September, 1948; "Far-Flying Wild Fowl and Their Foes," October, 1934; and "Fowls of Forest and Stream Tamed by Man," March, 1930.

Egypt's Pyramids Look down on a Flock of Geese—The Egyptian is the smallest of all domesticated geese. One of the earliest fowl to be tamed, its ancient history is recorded in carvings in royal tombs along the Nile. Though no longer held sacred, as it was 40 centuries ago, the goose is highly esteemed for food and feathers.

MAYNARD OWEN WILLIAMS

GILBERT GROSVENOR

Ten Potential Thanksgiving Dinners Parade Pondward—Though eclipsed in popularity by the turkey, the domestic goose provides a succulent alternate as the mainstay of Thanksgiving's big meal.

Bulletin No. 4, November 23, 1953

A Goose Silly? Not So, the Farmer Says

How silly is a goose? Not silly at all, say farmers and sportsmen, who should know.

At least two farmers, living at widely separated places in the United States, have ganders they claim tend sheep. In each case, the big bird leads the flock to water, then returns it to pasture.

The talents of geese as sentries are well known. Excited gabbling of Rome's sacred geese from their home in the Temple of Juno atop the Capitoline Hill roused the Eternal City's defenders in time to rout the barbarian Gauls who invaded Italy in 390 B. C.

Used in Kenya—"Watchdog" geese were sent last summer from Suffolk, England, to Nairobi, capital of British Kenya in east Africa. They were bought by a settler to give the alarm in case of Mau Mau attack.

Across the world in Malaya, the British high command early in 1953 announced that goose sentries were being stationed in pens around villages threatened by communist guerrilla raiders.

Like their domesticated brothers, the free, highflying wild geese that go honking down the sky at season's turn rate high in intelligence. Canada geese, snow geese, blue geese, brant—all make careful inspection of the ground for possible danger before landing. While feeding, they post sentinels.

November they had chosen electors from their ranks who will meet to name their district representatives in the Parliament.

Six million dark-skinned Moslem Arabs are scattered over the vast semidesert north. They vote direct for candidates from November 18 to 25. Paper ballots are cast in the towns, colored tokens in the rural areas. In addition, the few thousand Sudanese who hold the equivalent of a high school diploma may vote by mail before December 7 to fill five seats allotted exclusively to this educated class.

Four major and several minor political parties campaign for objectives ranging from immediate full independence to immediate government by Egypt. But their activity touches little more than the one per cent of the people who have had some schooling. These are centered in the chief towns—Khartoum, the capital, and neighboring Omdurman—at the junction of the Blue Nile and the White Nile.

The United States presidential election in 1952 counted some 61,000,000 votes in one day. But in America's early years voting was sometimes by voice, by use of colored beads, and by ballots supplied by political parties. Returns straggled in for many days.

Egypt Seeks "Unity"—Precious Nile water is why Egypt presses for "unity of the Nile Valley," meaning Egyptian control of the Sudan. The Nile Waters Agreement of 1929 between Great Britain and Egypt has worked satisfactorily, but Egypt wants "unity," not a mere agreement.

Though language, commerce, and religion bind the two areas, Sudan's Arabs are not Egyptians. In 1883-5 they threw off the yoke of Egyptian misgovernment that began with conquest in 1820 and carted off gold, ivory, and slaves. The uprising was led by a self-styled Mahdi (Divine Guide) whose son leads a current political party.

The famous General C. G. (Chinese) Gordon was killed when the Mahdi's forces took Khartoum in 1885. Thirteen years later Lord Kitchener won the historic battle of Omdurman against sword-waving "Fuzzy-Wuzzies" immortalized by Kipling. Sir Winston Churchill was a young officer in this Anglo-Egyptian reconquest of the Sudan to end the lawless tyranny of the Mahdi's successor.

Khartoum, largely rebuilt since 1885, is now an attractively landscaped center of government, business, and finance in the Sudan. Omdurman is the center of native cultural and religious life—a mud-brick city of 125,000 with bazaars and a Great Mosque.

A short ride southward from these two cities the rich farming district of El Gezira stretches between the two Niles. There a government-managed, million-acre irrigated area now produces some 40,000 tons of the world's finest long-staple cotton annually. The government profit on cotton provides about half the revenue of the entire Sudan.

References—The Sudan may be located on the Society's map of Africa.

For a picture of today's Africa, from the Mediterranean to the Cape of Good Hope, see "Safari Through Changing Africa," by Elsie May Bell Grosvenor, with photographs by Gilbert Grosvenor, in *The National Geographic Magazine* for August, 1953.

See also "South in the Sudan," in *The National Geographic Magazine* for February, 1953; "With the Nuba Hillmen of Kordofan," February, 1951; "Timbuktu and Beyond," May, 1941; "Three-Wheeling Through Africa," January, 1934; and, in the GEOGRAPHIC SCHOOL BULLETINS, March 16, 1953, "Anglo-Egyptian Sudan to Be Self-Governing"; and "Anglo-Egyptian Sudan Involved in Suez Crisis," Nov. 12, 1951.

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GEORGE RODGER—MAGNUM

Wandering Arabs Gather at a Sudan Water Hole—Goatskins filled and slung across donkeys' backs, the group (left) prepares to leave. The rope carried by one person is needed to reach water in the deep well. Shawled woman (right center) prepares to draw her share from the log-covered pit.

Bulletin No. 5, November 23, 1953

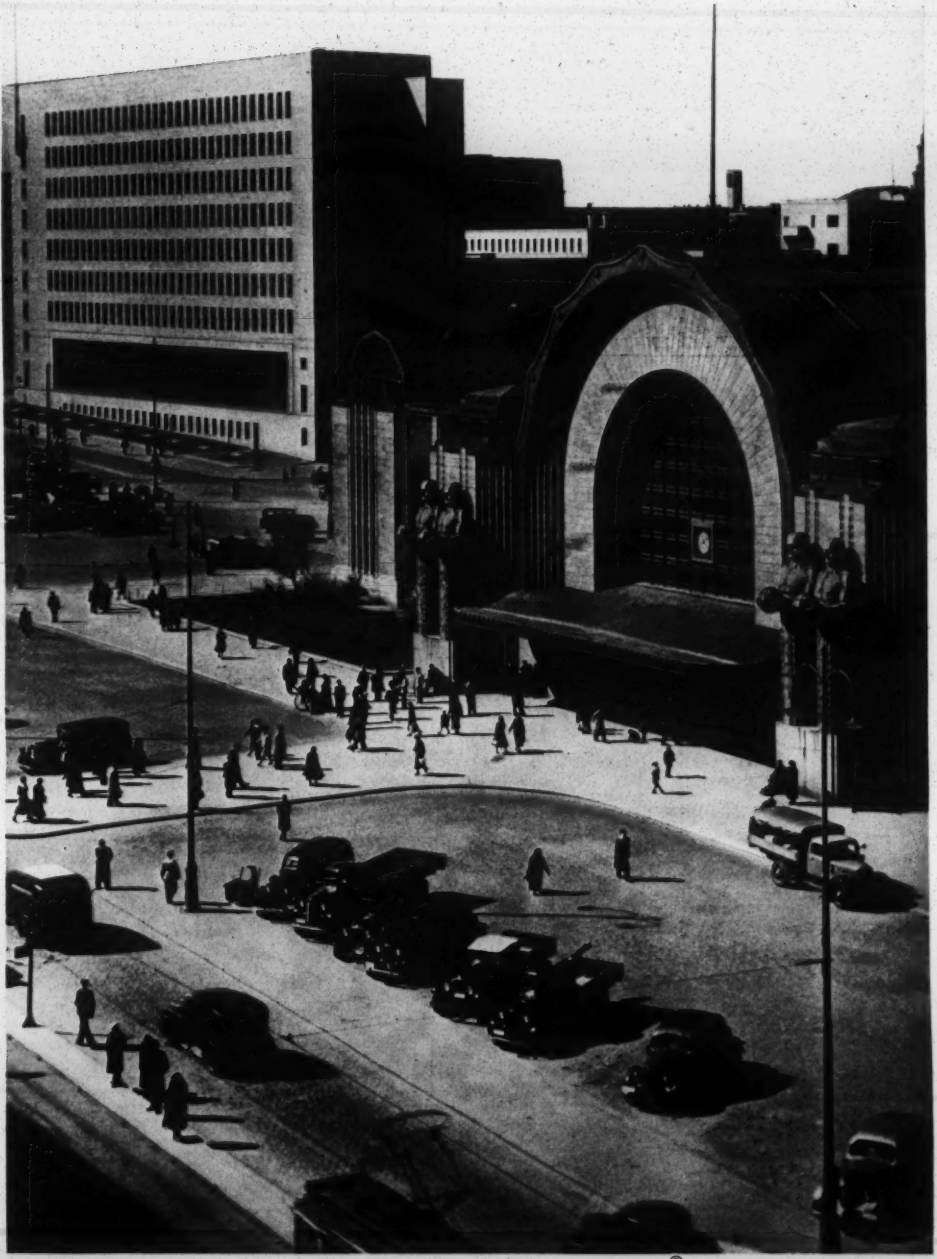
The Sudan Starts down Freedom's Road

Elections do not come often in Anglo-Egyptian Sudan and when they do they are not the one-day affairs that United States citizens are used to. Now in the process of electing its first Parliament, the huge African land is devoting five weeks to a vote count that will reach into every remote corner.

After three years, the Sudan's first Parliament will order the election of a special assembly to choose full independence or some degree of union with Egypt. Since 1899, Great Britain and Egypt have jointly ruled the Sudan.

Nile Flows North—As large as the United States east of the Mississippi, the Sudan holds fewer than 9,000,000 people. It is a nomad land 500 to 1,000 miles wide. It extends 1,300 miles from Egypt on the north to Kenya, Uganda, and the Belgian Congo on the south. From south to north it is traversed by the life-giving River Nile.

Some 2,500,000 primitive Negro tribesmen (illustration, cover) wander veld, forest, and tropical swampland in the Sudan's south. By mid-



(SEE BULLETIN NO. 2)

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Modern Colossi Light the Entrance to Helsinki's Railroad Station—The huge figures, perhaps half the height of the legendary Colossus of Rhodes, hold enormous light globes at the doors of the pink granite station. At the left towers the many-windowed post office. Both structures are examples of the genius of Finland's architects, whose work has influenced building all over the world.